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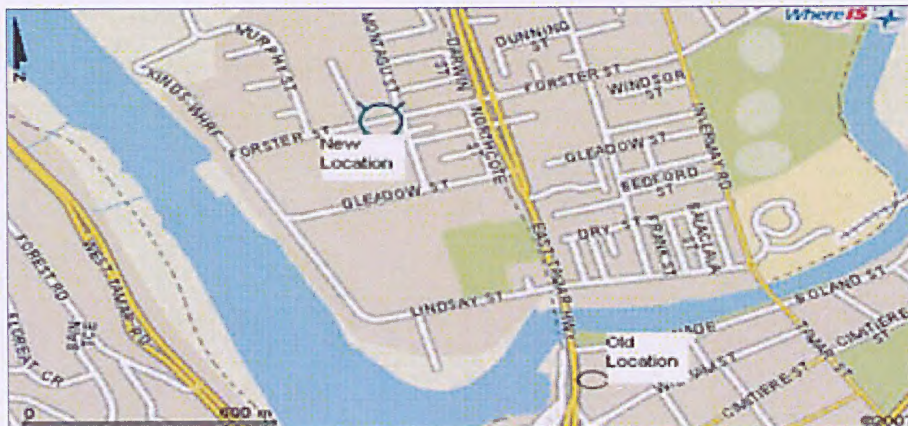
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editorial

ANTARCTIC EDUCATION TAKES OFF

After last quarter's focus on the Antarctic airlink and successful flights from Hobart to Wilkins and return, this quarter seemed to be full of waiting games, until quite recently. With a new Minister for Environment in Canberra and a new Minister for Economic Development in Tasmania, we are still waiting to gauge the level of interest both these Ministers have in Antarctica, and in the significance of the Tasmanian Polar Network.

However, Premier Paul Lennon and Vice-Chancellor Prof Daryl Le Grew of UTAS have signed a three-year Partnership Agreement and established a new institute focusing on the priority areas of health, education, climate change, Antarctic and marine science and island culture.

In addition, Paul Cullen is returning as Director of the Antarctic Midwinter Festival this June. Let's hope he brings back Midwinter Dinners!

Some Antarctic activities have been receiving a lot of media attention this season, particularly whaling and global warming and thanks to Antarctic Tasmania, all TPN members are receiving copies of articles by email. It is very useful to have a continuous supply of information from which to form opinions. IB also welcomes Mary Woolnough, who with Caroline Grubb, has taken over from Cordula Ruckstuhl in the Antarctic Tasmania office.

This edition covers several International Polar Year expeditions as well as Sir Guy Green's view on Antarctic education and the new International Antarctic Institute. The Bureau of Meteorology's involvement in Antarctic weather over the centuries makes interesting reading too.

Anthea Wallhead

Editor Ice Breaker Magazine

ICE BREAKER

TASMANIA'S ANTARCTIC BUSINESS MAGAZINE

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Back cover: (Top) Google's Yellow Igloo. Photo: QUADRAS. (Bottom) Passengers, crew, runway and station personnel assemble for a photo after the first official passenger flight. Photo: AAP.

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Ice Watch: Jeremy Rockliff

Unregulated commercial whaling has had a very serious impact on the world's whale populations.

There is nothing like the arrival of the Japanese whaling fleet in the Southern Ocean to set off emotions, and it has been a particularly intense start to the year so far as this issue is concerned.

There has been the historic Federal Court decision ordering a Japanese whaling company to stop killing whales in Australian Antarctic waters, shocking images of two slaughtered Minke whales being hauled into a Japanese whaling vessel, and the very tense situation that followed two environmentalists from the Sea Shepherd conservation society boarding a whaling vessel and being held there for some time, just for starters.

Like most people, I abhor whaling and don't believe there is any good scientific reason for these magnificent mammals to be slaughtered in the so-called name of research. What's more, death by harpoon is barbaric and slow.

Clearly, whaling nations such as Japan see things differently, but I am optimistic

that Australia can be at the forefront

of securing the establishment of a global whale sanctuary and ending the slaughter of these creatures once and for all.

Australia can be proud of its record of taking action to protect whales in the past and it is critical that momentum and credibility is not lost following the recent a change of government.

Although the history of whaling activities dates back thousands of years, the patterns, methods and purposes behind whaling have changed as time has passed and the debate as to whether this practice should continue has intensified.

Unregulated commercial whaling has had a very serious impact on the world's whale populations. Despite the creation of the International Convention on the Regulation of Whaling, 1946, and the subsequent establishment of the International Whaling Commission (IWC) which introduced a complete ban on commercial whaling for an indefinite period of time in 1986, countries such as Japan, Norway and Iceland, as well as pirate whalers, continue to conduct whaling. Indeed, some 1,400

whales are killed every year, 25,000 whales have been killed for commercial purposes since 1986, and 7 of the 13 species of great whales are still endangered.

Australia has a proud record in fighting whaling. In 1980, the Fraser Government banned commercial whaling in Australia and in 2000, the Australian Government created the Australian whale sanctuary.

It's important the new Federal Labor Government continues this important work, particularly in pushing for the global whale sanctuary, and monitoring the activities of whalers in our southern waters.

I applaud the conviction and determination of those people working to secure an end to whaling but I do also take this opportunity to reaffirm the importance of everyone respecting the law and the safety of people at sea.

In closing, I must draw attention to the International Polar Year, a large, exciting scientific program focused on the Arctic and the Antarctic from March 2007 to March 2009 involving over 200 projects, with thousands of scientists from over 60 nations examining a wide range of physical, biological and social research topics. This program presents an unprecedented opportunity to demonstrate, follow, and get involved with cutting edge science in real-time and I look forward to following its progress with extreme interest and encouraging others to do the same.

Jeremy Rockliff

Deputy Leader of the State Opposition

Rare Penguin

A pale brown penguin sited near Mawson's huts was identified as a 'Leucistic' or 'Isabelline' Adelie penguin, a rarely seen genetic variation of the usual black-backed Adelie. The penguin was photographed by Brett Jarrett, one of the Mawson's Huts Foundation expedition members who spent 8 weeks constructing a conservation laboratory, monitoring the effectiveness of the new roof of the main hut and working on a virtual reality model which will enable people to tour the huts. Details: www.mawsonshuts.org.au/draft/index.php.

Airport Sale

Hobart Airport has been sold for \$350 million to the Gateway Consortium, owned by Macquarie Finance Group and the Retirement Benefits Fund. As annual profits last year totalled \$4.7 million, management remains unchanged.

The airport's 'Gateway to Antarctica' role has now been successfully established, despite some delays because of poor weather conditions, with nine passenger flights to Wilkins runway having been completed to date.



Ice Watch: Peg Putt

“It is important to ponder that our human activities have such far-reaching consequences”

Did you see the footage of extraordinary creatures filmed in a survey of marine life on the Antarctic sea floor? Australian scientists aboard the *Aurora Australis* found species never seen before - or even imagined to exist, with their bizarre features.

The expedition was part of the 10-year international Collaborative East Antarctic Marine Census, and because of its wealth of discoveries is predicted to go down as one of the world's great marine science voyages.

Transfixed as I was by the images of the strangest things evolved to live deep on the sea bed, including giant worms, giant

crustaceans, giant sea spiders (aaagh!), glass-like tunicates, and things with no name, I realised that there is a very serious side to this research.

The purpose was to establish a benchmark for the biodiversity of the Southern Ocean in order to be able to then track changes as acidification of the ocean worsens due to human induced carbon emissions. We could lose many of these species.

It is important to ponder that our human activities have such far-reaching consequences, even in what we regard as the last great wilderness.

On another note, to do with human activity in the Southern Ocean itself, this summer has again seen controversy over Japan's so-called 'scientific' whaling. I think it gives science a bad name.

I went down to Princes Wharf to welcome the Greenpeace ship *Esperanza* on her return. There was a terrific atmosphere as many locals gathered to thank the hardy souls who went south to keep an eye on the whaling and deter it where possible.

Peg Putt

Leader of the Tasmanian Greens

NASA tests lunar habitat in Antarctic environment

NASA is sending a prototype inflatable habitat to McMurdo Station in Antarctica to see how it stands up during a year of use. Under their Innovative Partnerships program, NASA, the National Science Foundation and ILC Dover, the company that manufactured the prototype structure, will share data from the 13-month test, from January 2008 to February 2009. More information is available at <http://www.ipp.nasa.gov>.

This prototype inflatable habitat can be taken down and redeployed multiple times, and it only takes four crew members a few hours to set up, permitting exploration beyond the initial landing area. The structure looks something like an inflatable backyard bounce house for children, but it is far more sophisticated. It is insulated and heated, has power and is pressurized. It offers 384 square feet of living space and has, at its highest point, an 8-foot ceiling.

During the test period, sensors will allow engineers to monitor the habitat's performance. During the test of the new inflatable habitat, the foundation will study improvements in packing, transportation and set up, as well as power consumption and damage tolerance.

International Voyage

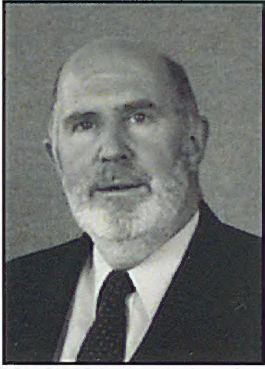
In January 2008, New Zealand's Prime Minister Helen Clark launched a major scientific voyage to Antarctica which will capture information on the effects of climate change in the region. The eight-week voyage on the vessel *Tangaroa* will have 26 scientists and 18 crew members and is a collaboration between Land Information New Zealand (LINZ), Ministry of Fisheries (MFish), Ministry of Foreign Affairs and Trade, Antarctica New Zealand, National Institute of Water and Atmospheric Research (NIWA), New Zealand universities, and both the Italian and United States Antarctic Programs.

The voyage, known as NZ IPY-CAML falls

under two global science programs - International Polar Year and the Census of Antarctic Marine Life. Both of which received funding of \$11.1 million from the NZ Government. Scientists will focus on the biodiversity of the Ross Sea and will film the seabed at depths of 4000m as part of the Census of Antarctic Marine Life (CAML) - a multi-national research project involving 23 countries and 11 coordinated voyages, to survey marine ecosystems and habitats in waters surrounding Antarctica. The data gathered from this voyage will help assist decision-making on environmental issues such as climate change and its effect on Southern Ocean eco-systems.

New Base Plans

KORDI plans to set up a second Antarctic research station, closer to the South Pole by 2011. Korea operates 11 facility buildings and two observatories on the base, named the King Sejong Station, which is located on the Barton Peninsula and recently celebrated its 20th anniversary



Ice Watch: Bill Lawson

“An action plan is now being developed which will see new initiatives taken by the TPN in pursuit of this objective.”

Well, it's now history – the Hobart Antarctic Airlink is functional. Terrific stories are now emerging of the trip south in a few hours. 'More and better science' was the catch cry of the combined Airlink lobbying effort so we now keenly await the accumulation of evidence in support of this assertion. No doubt there will be still lots to learn and continuous improvement will occur to the service but it's done. Well done to everyone involved!

At the end of 2007, the 'rock' of the TPN, Cordula Ruckstuhl, retired from her position with the Tasmanian Government. The TPN Executive was pleased to host a farewell dinner for Cordula and her spouse and

we wish them well in retirement and put on record here our gratitude for her untiring efforts in support of the TPN and its work.

The TPN Executive is now working hard to implement our new Strategic Plan, including efforts to increase the exposure of the Southern Oceans, Antarctica and the sub-Antarctic in Tasmania's educational world, particularly at Secondary level. An action plan is now being developed which will see new initiatives taken by the TPN in pursuit of this objective.

The Midwinter Festival is now well into the planning stages with some new events and relationships directed at widening the

level of public awareness and participation during the week's festivities. Members will be hearing more of this very soon.

The TPN will again combine with 'Alliance Française' to host a 'welcome back to Hobart' function in March for the last French contingent returning from Dumont d'Urville en route to France. TPN members and partners are encouraged to join in this occasion to ensure our French guests remember Hobart as the place to visit and tell their friends at home.

Bill Lawson

TPN Chairman





Ice Watch: Ben Galbraith

“...initiatives that could be advanced by the Tasmanian Polar Network...”

New Minister

We welcome Paula Wriedt, MHA, Minister for Economic Development and Tourism to her new role. The Minister assumes the Premier's Economic Development portfolio, which includes being responsible for Antarctic affairs, and retains responsibility for tourism.

Airlink Forum

On 13 November 2007, Antarctic Tasmania and the Tasmanian Polar Network hosted an Antarctic airlink forum at the Hobart International Airport. The forum was attended by 65 participants and included presentations by the Australian Antarctic Division and the air service operator, Skytraders.

The Antarctic airlink forum explored options on how to maximise the benefits for Tasmania arising from the Antarctic airlink and identified initiatives that could be advanced by the Tasmanian Polar Network and other interested groups. Participants considered opportunities for Tasmania across a number of theme areas including education, tourism and hospital-

ity, science, Tasmanian branding, conferences and events, and providing support services and products.

Launch of Sub-Antarctic Forum Proceedings

On 23 November 2007, Antarctic Tasmania launched the publication of the proceedings from the International Sub-Antarctic Forum that was held in July 2006. The success of this forum (and the partnership between the Royal Society of Tasmania and Antarctic Tasmania) provided the impetus for the special edition of the Royal Society of Tasmania journal. The special edition of the journal supports endeavours to improve the understanding and management of Sub-Antarctic ecosystems, with papers from 21 contributing authors from five nations: Australia, France, New Zealand, United Kingdom and South Africa.

Other highlights

Antarctic Tasmania has engaged a waste management consultant to identify the quantity and potential commercial value of historical waste stockpiles located in East

Antarctica and on a selected number Sub-Antarctic islands.

Antarctic Tasmania is assisting Antarctic Spirit Charters, a start-up business with sector advice and assistance.

We welcome Paul Cullen back to Antarctic Tasmania. Paul has been appointed as this year's Antarctic Midwinter Festival Director and he comes with a wealth of experience having been the Festival Director in 2002 and 2003.

We also extend our thanks to Cordula Ruckstuhl for her dedication and hard work as part of the Antarctic Tasmania team. Cordula retired on 17 December 2007 after 30 years in the Public Service. Cordula was with Antarctic Tasmania (formally known as the Office of Antarctic Affairs) since the unit's inception in 1994.

Caroline Grubb and Mary Woolnough have taken over Cordula's role on a job sharing arrangement.

Ben Galbraith

General Manager Antarctic Tasmania

POLAR NEWS: IPY Activity at Dome A

In January 2008, a Chinese scientific expedition chose a venue for the country's first astronomical observation station on Dome A, a major project of China's action-plan for the International Polar Year. Under the leadership of the China Antarctic Astronomy Center, site selection was made by scientists from China, New South Wales University in Australia, Institute of Technology of California in US, and University of California at Berkeley in US.

The outpost is made up of a series of facilities, such as a power system, a host computer system, a system for satellite-relayed telecommunication, panels of solar cells, an automated weather station and other supportive devices for astronomical observations. It is also planned to install a complete set of observatory equipment including an array of small-aperture optical telescopes. CSTAR will be able to monitor all celestial bodies in about 20 square degrees above the Dome A., making analyses and statistics on variable stars, locating exoplanets, and supernovas. The equipment

will be the first group of sky-watching implements to be installed and operational on the Antarctic continent.

TPN Contributions

Six Ice Tractors, supplied by William Adams, a TPN member, played a vital role in carrying equipment 800 miles across the continent from China's Zhongshan station to Dome A to set up the 7-tonne Plateau Observatory (PLATO).

Photo of four of the tractors (left) courtesy Peter Fukes, William Adams Pty Ltd.

Exclusive: IAI Report

DEVELOPMENT OF THE INTERNATIONAL ANTARCTIC INSTITUTE

Tasmania has the most significant and diverse concentration of Antarctic and Sub Antarctic fields of endeavour in the world. An important component of those assets is in education and training.

The Institute of Antarctic and Southern Ocean Studies at the University of Tasmania offers a wide range of undergraduate and graduate courses relating to Antarctic and marine studies, while supporting education and training are important components of the mission of the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC). A notable achievement last year was the establishment by the University of the UNESCO-Cousteau Ecotechnie Chair in Antarctic and Southern Ocean Environmental Sciences, the only Cousteau Chair in Australia and the only UNESCO Chair in Antarctic Studies in the world.

Looking at Antarctic education in a more general sense, Tasmania makes significant contributions through initiatives such as the world class Islands to Ice exhibition at the Tasmanian Museum and Art Gallery, the unique Royal Tasmanian Botanical Gardens Sub Antarctic Plant House, the Polar Pathways project and the establishment by Antarctic Tasmania of the Australian Education, Outreach and Communication Committee as part of the International Polar Year (IPY).

The establishment of the International Antarctic Institute in recent years represents a further major contribution by Tasmania to Antarctic and Sub-Antarctic education. It is worth recording the path which led to its establishment.

At the first Governor's Forum, held in 1996, Antarctic education was identified as presenting possibly the "greatest opportunity" for enlarging Tasmania's involvement in the Antarctic sector. At the 1999 Forum and the follow up workshop in 2000, that theme was pursued through the presenta-

tion of a concept involving the establishment by the University of a virtual Institute of Antarctic Studies with the objective amongst other things of "extending Antarctic education and promoting and marketing our expertise locally, nationally and internationally".

At the 2003 Governor's Forum the Vice Chancellor Professor Daryl Le Grew and the Director of IASOS Professor Andrew McMinn crystallised the concept and took it to another level by proposing the establishment of a University of the Antarctic, whose members would comprise a consortium of Universities which have substantial Antarctic or Polar studies programmes. It was envisaged that the new institution would be international, decentralised, to some extent virtual, not associated with any particular government and combine and draw upon the individual strengths of each of its members.



Sir Guy Green

The first step in advancing that idea was to see whether anyone else shared that vision.

The Vice-Chancellor and I jointly wrote a letter to the heads of a number of Universities and Institutes around the world,

INTERNATIONAL ANTARCTIC INSTITUTE PARTICIPANTS

- Hamilton College, USA
- Ohio State University, Byrd Polar Research Center, USA
- Hokkaido University, Japan
- National Institute of Polar Research (NIPR), Department of Polar Science, Japan
- Tokyo University of Marine Science and Technology, Dept. of Ocean Sciences, Japan
- Universidad de Magallanes, Chile
- Universidade Federal do Paraná, Brazil
- University of Tromsø, Norway
- Università di Siena, Italy
- Universität Bremen, Germany
- Universitat de Barcelona, Spain
- Université de Bretagne Occidentale & European Inst. for Marine Studies (IUEM), France
- Université Pierre et Marie Curie- Paris VI and Observatoire Océanologique, Villefranche sur mer, France
- Universiti Sains Malaysia, Malaysia
- University of Malaya, Malaysia
- University of Cambridge, Scott Polar Research Institute, UK
- University of Canterbury, Gateway Antarctica, New Zealand
- University of Tasmania, Australia

continued >>

Exclusive: IAI Report

introducing them to the concept and inviting their views. The responses were most encouraging. All were enthusiastically supportive of the idea and wanted to be involved. Those expressions of support were given concrete expression in November 2004 when 30 participants from 19 institutions in 12 countries attended a two-day workshop in Hobart and unanimously passed resolutions endorsing the proposal to set up such an Institute and agreeing in principle upon the form it should take.

A Steering Group, comprising representatives from the University of Tasmania, the Australian Antarctic Division and Antarctic Tasmania, was established to implement those decisions and during the next 18 months Professor McMinn and Dr Patti Virtue were very actively engaged in discussions with the participants to advance the concept.

At an historic meeting held in Hobart on 8 July 2006 the International Antarctic Institute and its governing council were established by unanimous resolution and the first meeting of the Council was held. At that meeting it was agreed that the Institute would continue to be administered by the University of Tasmania for three years with the Director being Professor McMinn. It was also recognised that in the future the Secretariat might rotate amongst the members or that a levy might be paid to fund a permanent Secretariat.

Other important decisions related to the admission of additional members and the establishment of an Academic Committee whose function is to process applications from members for the approval and delivery of Institute courses.

At present the IAI comprises 18 highly regarded Universities or Institutes from 13 countries (listed on previous page). It is expected that the Institute will admit additional members but it is agreed that the consortium should not be allowed to grow too large. Even though the Institute is still in the early stages of its development, some 12 courses or units in the life sciences, physical sciences, law and policy have already been approved by the Academic Committee. Some include fieldwork in places as diverse as Tasmania itself (both as the location of significant Antarctic related institutions and as a remnant of Gondwanaland), Antarctica, Switzerland and on board ships.

As the IAI is not an incorporated entity capable of conferring degrees, the University conducting the course will award its degrees or diplomas, but they will be recognized as being IAI awards. In that connection the requirement that all members of the Institute must approve a course before it is accepted as an IAI course even though only one or two members might be involved in the actual delivery of that course is a crucial characteristic of the Institute.

Incorporation of the Institute is not practicable at present but not being incorporated is not an impediment to its development. It is seen as an entity distinct from its members and that perception will be advanced through a formal constitution which will replace the resolutions which currently comprise the rules of the consortium and which will give the IAI the capacity to hold and deal with its own funds. We are working towards having that constitution approved this year.

A project such as the IAI is important for Tasmania. It places the University of Tasmania at the centre of a network of influential institutions in four continents, it enhances Tasmania's standing as a world leader in the Antarctic field generally and in Antarctic education in particular and it enriches Tasmania's brand as an interesting, enterprising, intellectually cultivated place in which people should invest, do research, take up residence or be educated.

By conceiving and bringing into existence this ground breaking international institution which has attracted the support of some of the most prestigious universities in the world, the development of the IAI also illustrates yet again that Tasmania should never feel inhibited by its relatively limited resources and small population from taking on grand ideas.

Sir Guy Green

Sir Guy Green has promoted Tasmania's role in Antarctic education and policy for over 12 years and currently holds the following positions:

Chairman of Trustees of the Tasmanian Museum and Art Gallery.

Chairman of the committee for the establishment of the International Antarctic Institute

Honorary Antarctic Ambassador for Tasmania.

Honorary Professor of the University of Tasmania in the ACE CRC.

Patron of the Antarctic Climate and Ecosystems Cooperative Research Centre.

Held four multidisciplinary Antarctic and Sub Antarctic Governor's forums 1996 -2003

Delivered the inaugural Phillip Law Lecture 2002

Chairman of the organising committee 2006 International Forum on the Sub Antarctic.

Chairman of the Australian Education, Outreach and Communication Committee for the IPY2007-2008.



Ice Watch: Rob Valentine

An action plan is now being developed which will see new initiatives taken by the TPN in pursuit of this objective.

I would like to commence this article with the confirmation that with the election of the Australian Labor Government, the extension of the Auslink highway funding program to include both the Brooker to the port of Hobart and Tasman Highways from the City of Hobart to the airport is now a reality. This will result in an improvement of these important corridors over time and no doubt assist with the City's status as a major Antarctic Gateway. I also note that the new Australian Government is committed to a number of other major road and transport upgrades in the southern region, which I believe will help with logistics in the Antarctic supply industry.

The airlink is also now a reality and hails in a new era for transport to the Antarctic continent. The Tasmanian Antarctic industry should be justly proud of its efforts in lobbying for this critical linkage and the benefits it will bring to all Tasmanians. The Council believes that this will open up new possibilities for Tasmanian businesses and must surely cement the City of Hobart as one of the world's key gateways to the Antarctic. The Council looks forward to these new opportunities developing over time. In particular the Council sees this time as a great opportunity to work with State Government in promoting the benefits and capacity of the City and both its sea and air ports.

Finally I would like to note that the Council has now endorsed its new 20-year vision and the strategic framework for achieving that vision. Hobart's scientific and research community as well as the wider Antarctic industry has featured heavily in these documents as integral features of the City economy and growth of the region. What was also pleasing was that during the community consultation phase, it was clear the Hobart community has a very high knowledge, and is proud, of the Antarctic and Southern Ocean scientific focus of the City.

Alderman Rob Valentine

Lord Mayor, Hobart



Stamp cover kindly provided by Klaus Arne Pedersen, Antarctic Services, New Zealand.



Fig. 5. Automatic Weather Station destined for Wilkins Runway (Photo: Cathie Young).

Australian Antarctic Weather Services

On 1 January 2008 the Australian Bureau of Meteorology turned 100 years of age but “weather connections” between Tasmania and Antarctica now span the 19th, 20th and 21st centuries. Here we take a quick look at the history of Australian weather observations and forecasting in the Antarctic: Figure 1 shows the locations of most places mentioned.

In 1836 the British Royal Society requested assistance from the British Government in establishing in observatories at



Fig. 4. Mawson Station (Photo: Unknown).

the Cape of Good Hope (southern Africa), St. Helena (in the South Atlantic), Toronto (Canada) and Hobart: the simultaneous establishment of these four stations represented the beginning of synoptic meteorology within the British Empire, that is, effectively on a worldwide basis. As a result, a naval expedition under the command of Sir James Clark Ross, in the ships Erebus and Terror, left England in late 1839 and arrived in Hobart Town in August 1840. Following this British Royal Society initiative, an observatory was erected on the Queen’s Domain adjoining the present Government House, and was named the Ross Bank Observatory (Figure 2).

After setting up the Ross Bank Observatory in Hobart, Ross sailed the Erebus and Terror to Antarctica, discovering, among other things, the Ross Sea, the Ross Ice shelf and Mount Erebus. Tasmania has, from its early days, had links with Antarctic explora-

tion – similarly, Australian meteorology has been closely linked with human activity in Antarctica. A Tasmanian, Louis Charles Bernacchi, made meteorological observations at Cape Adare in 1899 as a member of the British expedition lead by Borchgrevink. This was the first party to winter over on the Antarctic continent. The first Bureau member to work in the Antarctic was Griffith Taylor, a meteorologist, geographer, geologist and glaciologist. A member of Captain Robert Scott’s British expedition in the Terra Nova in 1910, he joined the field parties which explored considerable areas of Victoria Land bordering the Ross Ice Shelf.

Another Bureau officer, George Ainsworth, was Officer in Charge of the station established on sub-Antarctic Macquarie Island in 1911 as a radio relay station for Douglas Mawson’s expedition to Antarctica. Between 1913-1915 the Macquarie continued >>

Australian Antarctic Weather Services

Island station was maintained and staffed by Bureau officers.

The Bureau was a founding member of the Australia National Antarctic Research Expedition (ANARE) in 1947. In contrast to geopolitical reasons, a major impetus for the original establishment of the ANARE was the scientific, public and political perception that meteorological observations from the data-void region of the Southern Ocean south of Australia would enable a better understanding of the weather systems affecting southern Australia and lead to better short term (and possibly longer range) weather forecasts for the southern states. ANARE stations were set up on Heard and Macquarie Islands with Bureau officers as the first Officers in Charge.

Macquarie Island (Figure 3) remains a very important platform for weather observations for Australia and the Southern Hemisphere. Heard Island closed in 1955 after the establishment of Mawson Station (Figure 4) on the Antarctic continent in 1954, although its automatic weather stations still broadcast limited surface observations. Mawson Station now boasts the oldest and most continuous weather record on the Antarctic Continent.

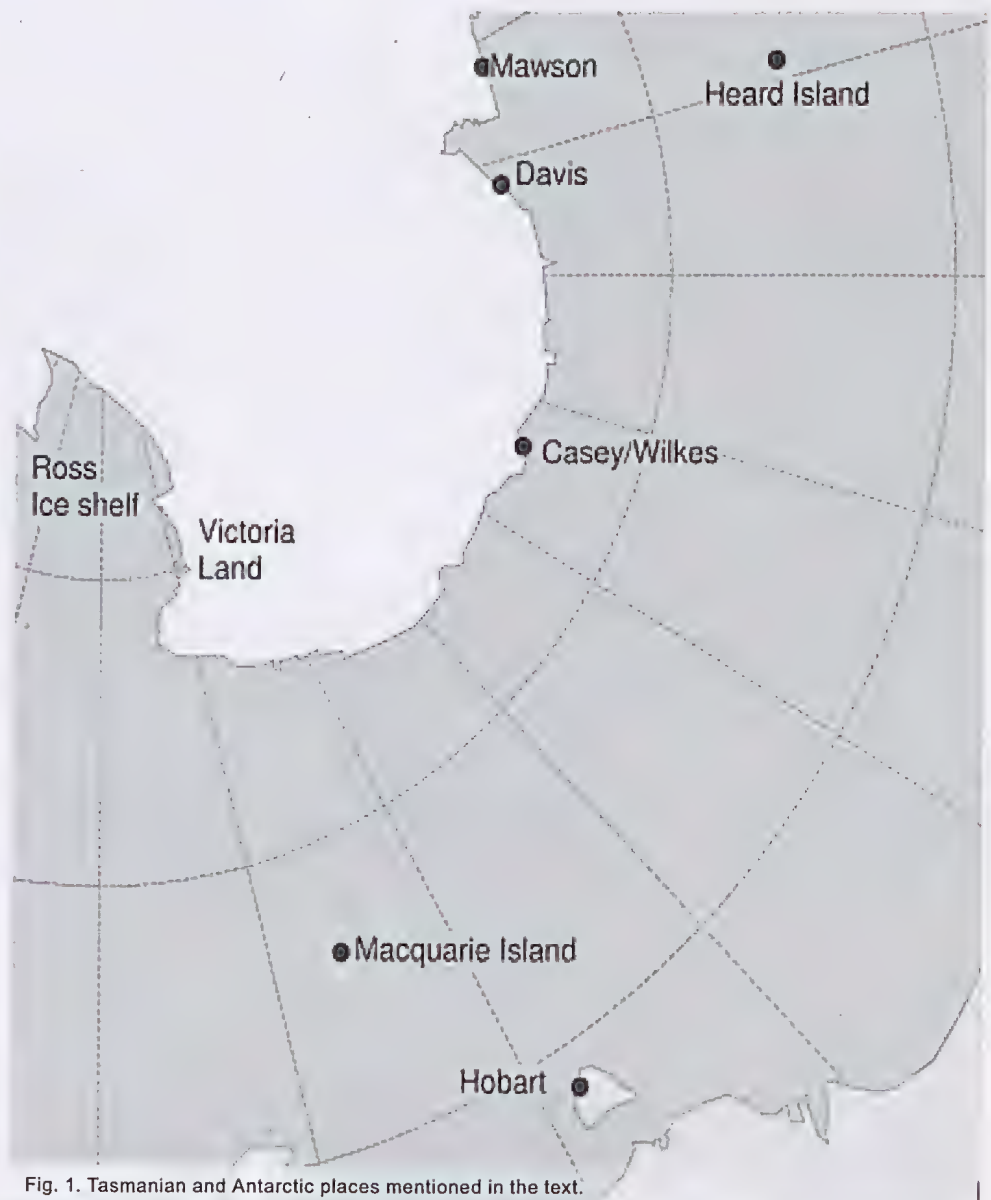


Fig. 1. Tasmanian and Antarctic places mentioned in the text.



Fig. 2. Ross Bank Observatory (painting by Thomas Bock 1842).

Coincident with the International Geophysical Year (1957-58), Australia opened Davis Station with Bureau officer Bob Dingle in charge. Wilkes Station, opened by the USA for the International Geophysical Year, was transferred to Australia in 1959. Snowdrift problems forced its replacement by the nearby Casey Station in 1969—and Casey had to be moved a small distance in 1989.

The meteorological stations on the sub-Antarctic islands and on the Antarctic continent have the fundamental purpose of providing weather observations for real-time numerical weather prediction on regional and global scales, as well as for the climate record. (Figure 5 shows an continued >>

Australian Antarctic Weather Services



Fig. 3. A weather balloon being launched on Macquarie Island (Photo Tim James).

Automatic Weather Station (AWS) of the type that the Bureau assists the Australian Antarctic Division to operate at the Wilkins Runway near Casey – at the time that the photo was taken, the AWS was near Penguin Pass, very close to Casey itself.) The Bureau has long provided weather forecasting for ANARE, and its successor, the Australian Antarctic Science Program. For many years one or more forecasters supported ANARE operations at a main summer operational centre (often Davis Station) or on expedition ships or sometimes in the field. The Antarctic Meteorological Centre established at Casey in 1991 is staffed for the operational (summer) season. Winter forecasting comes from the Tasmanian Regional Forecast Centre in Hobart. Since

1990, the Bureau's Regional Office in Tasmania has provided overall management of the Bureau's Antarctic effort.

Acknowledgements

Substantial parts of this account are based on material collated by current and former Australian Bureau of Meteorology staff. In particular work by Dr. Neil Streten, a former Bureau Deputy Director (Services) and a very well-known "Antarcticist", informed a substantial part of the Antarctic-related material, as did information provided by the Australian Antarctic Division.

Steve Pendlebury

Regional Director, Australian Bureau of Meteorology, Tasmania/Antarctica Branch

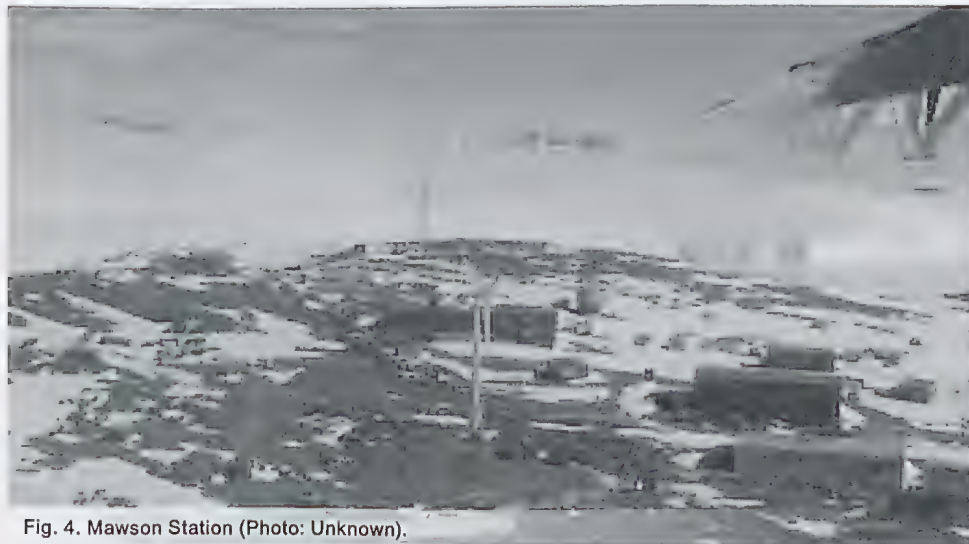


Fig. 4. Mawson Station (Photo: Unknown).

POLAR NEWS:

SHIPPING NAME CHANGE

As from January 1st 2008, OCEANIA MARITIME SERVICES (OMS) will be owned by INCHCAPE SHIPPING SERVICES (ISS). Stephen Parodi continues as Port Manager, available on Tel No: + 61 3 6224 1470, Fax No: + 61 3 6224 4103, Mobile: + 61 (0) 412 515 523 and E-mail: hobart@iss-shipping.com.au

MARITIME COLLEGE INTEGRATION

The Australian Maritime College became an Institute of the University of Tasmania on January 1, 2008. AMC offers undergraduate and postgraduate courses, including naval architecture, ocean engineering and maritime hydrodynamics, marine science and technology, integrated transport logistics, fisheries and sustainable management of ocean resources.

UTAS has also introduced a Masters of Antarctic Science this year.

HILLARY'S POLAR ACHIEVEMENTS

Sir Edmund Hillary, best known for his ascent of Mt Everest in 1953, died in January this year after a long illness. Sir Edmund also lead a team to the South Pole in January 1958, and he and his team were the first to reach the Pole since Robert Scott.

In 1979, Hillary was scheduled to be commentator on a flight over Antarctica but had to cancel because of other work commitments and it was his close friend Peter Mulrew, his replacement, who died in the Mt Erebus crash.

Last year marked the 50th anniversary of NZ's Scott Base, which Sir Edmund helped to build, and he was flown to the base for the celebrations.

POLAR ECLIPSE

While only a partial solar eclipse took place over Tasmania in February, the moon passed completely in front of the sun in Antarctica, leaving a thin ring of light called an annular eclipse.



Comments on Antarctic Tourism

In the aftermath of the sinking of the M/S Explorer off the Antarctic Peninsula in November 2007, articles in the popular press have raised the question whether Antarctic tourism is safe.

To date few details of this unfortunate incident have emerged but it appears that the vessel struck submerged ice, most likely black ice or the remains of a growler, that punched a fist-sized hole into its hull.

It is somewhat difficult to understand how a double-hulled vessel built specifically for Antarctic conditions (Ice Class rating DNV Ice A) could sink within 20 hours but we will have to wait for the results of an inquiry into the sinking to get the answers. Ship-based Antarctic tourism has had a good safety track record since it began in 1966 with the only other sinking being that of the Argentinean supply vessel

Bahia Paraiso that sank off Palmer Station in 1989 after hitting a submerged rock. Since its inception in 1991 the International Association of Antarctica Tour Operators (IAATO) has made a major contribution to make Antarctic tourism a safe and sustainable activity.

Whatever the findings of the inquiry will be, the unfortunate sinking of the M/S Explorer should not be used as a reason for the Antarctic Treaty Parties to become heavy handed in the regulation of all Antarctic tourism activities.

What does concern me though is the recent trend for large, single hulled vessels carrying thousands of passengers and crew that are heading south in increasing numbers. If such a vessel should get into distress and needed to be abandoned it would be very difficult, if not impossible,

to achieve the same efficient rescue of passengers and crew that was possible in the case of the MV Explorer.

Unfortunately it appears that the operators of large vessels have only a limited understanding of Antarctic conditions. One of them was quoted in the press as saying that their vessel does not go where the ice is - a statement of concern given that ships don't have to go where the ice is since the ice will come to the ship.

If the Antarctic Treaty Parties wish to make ship-based Antarctic tourism even safer, they need to focus on controlling large vessels. Such vessels most likely sail under the flags of convenience of countries such as the Bahamas, Panama, or Liberia that are not members of the ATS and hence it may be difficult to ban them from traveling south.

continued >>

Comments on Antarctic Tourism

One way to stop them is by reducing demand for such Antarctic tourism products by requiring citizens of ATS member countries to seek permission from their respective governments prior to sailing to Antarctica. Permission to nationals who wish to travel on non-ice strengthened vessels would be denied leaving operators with empty vessels and hence taking away the incentive to sail to Antarctica.

Thomas G. Bauer PhD, M. Bus. (Tourism), B. Bus. (Tourism), CHE, FRGS

Assistant Professor, Programme Leader BScC Hotel/Tourism Management, School of Hotel and Tourism Management, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong SAR, China.

Left: Le Maire, Thomas Bauer.
Right: Iceberg and Ship, Thomas Bauer
Below: Ice and Zodiac, Lina Bauer



Icetrek Achievements

AN ICY GREEN FIRST



Hobart-based polar guiding business, Icetrek Expeditions, has gone green. Icetrek has been certified carbon neutral by the Carbon Reduc-

tion Institute. CRI is itself certified under the Greenhouse Gas Abatement Scheme (GGAS) and in the final process of certification under the Australian government's Greenhouse Friendly programme. Icetrek has implemented a plan to negate 100% of its emissions. All of its products (such as ski bindings and sled harnesses), services (such as polar expeditions) and operations (such as computer usage) are PreGreen, meaning that all of Icetrek's emissions have been offset prior to customers purchasing from them.

Icetrek owner Eric Philips commented, "I felt it was important for Icetrek to become part of the low carbon economy because we operate in the two environments most affected by climate change, the Arctic and Antarctica. By offsetting our carbon emissions, in particular our charter flights onto the ice, I feel a little better about being part of the double-edge sword that is wilderness tourism."

Icetrek negates its emissions by purchasing carbon credits through CRI. All money collected is invested into the environment by replacing inefficient polluting technologies with energy efficient technologies and renewable energy resources. Some examples include the light bulb replacement program and landfill diversion projects.

All of Icetrek's products can now display the 'Carbon Neutral Product' logo. "By going green, I think we now have a commercial edge over our competitors in the Northern Hemisphere. People will increasingly be drawn to companies offering carbon-conscious products," said Eric, "and we are one of the first in this industry to offer them".



Team CANDU at the South Pole. From left, Merete Gjertsen (Norway), Alison Levine (USA), Bernice Notenboom (Netherlands), George Szwender (Canada), Eric Philips (Australia).

POLAR EXPEDITIONS

Polar adventurer Eric Philips has recently completed another ski trek to the South Pole. Guiding an international team dubbed Team CANDU (an acronym for the 5 nationalities represented in the team: Canadian, Australian, Norwegian, Dutch and from USA), Eric led the team over a little-used route pioneered by the great mountaineer and polar explorer, Reinhold Messner, almost 20 years ago. Covering 923km in 38-days, the team began from the geographical coast of Antarctica, at the grounding edge of the Ronne Ice Shelf in west Antarctica, following the western flank of the heavily-crevassed Foundation Ice Stream to the eastern end of the Thiel Mountains. Here the team collected a cache of food and fuel before continuing onto the Antarctic plateau where temperatures of -30C together with 25knot head winds severely challenged their +24km per day average. A final cache at 87 degrees south provided sustenance for their final dash to the South Pole, arriving on January 12, 2008. This was Eric's second South Pole expedition; his first trek, almost 10 years ago, began from New Zealand's Scott Base on Ross Island and covered 1425km in 84-days, pioneering a new route via the Shackleton Glacier. During that season the American's began construction of their new fourth generation Amundsen-Scott South Pole station. The station was com-

pleted this year with it's official opening on January 11 of this year, the day before Eric's arrival.

On March 9 Eric will head north again to the Norwegian island of Spitsbergen. Together with friend Matt McFadyen and Czech adventurer Vasek Sura they will ski around 200km from Ny Alesund to Longyearbyen. Adding another level of excitement, the mountainous terrain is fraught with crevasses and polar bears. The expedition is a commemoration of the 80th anniversary of General Umberto Nobile's embattled Italia airship expedition, which began from Ny Alesund.

Hot on the heels of this trek, Eric will guide two North Pole ski expeditions in March/April. After flying from Longyearbyen to Ice Station Borneo on board a Russian Antonov-76 the first is a last degree expedition with friend and Al Gore Climate Change campaign representative Ben Wheaton and French adventurer, Sandrine Tissier. Matt McFadyen will also join this trip but will then ski solo back to Ice Station Borneo. The second expedition will be a short ski trek with an energetic American couple in their mid-70s. Eric will guide them the last 5km and camp overnight at the pole. Together with 10 days of skiing in Japan with his family in January, Eric will have clocked up 70 days and over 1200km of skiing. He'll be back in Hobart in time for...winter!



Ice Watch: Bruce Mapstone

...around 146 million people worldwide...now live within just 1 metre of current sea level

Sea level rise and potential impacts around our coast has been in the news over recent months. It is now accepted that sea level has been rising for about the last 150 years and will continue to rise throughout this century, and for centuries beyond. A significant component of this movement in sea level is attributed to the effects of climate change, specifically global ocean warming and melting of glaciers and ice caps. Sea level has fluctuated for millennia, of course, but prior to this recent movement, sea level had been fairly static for 2,000-3,000 years.

A major difference between previous periods of rising sea level and the modern trend, however, is the presence of major human settlements along coasts all around the world, with billions of dollars of infrastructure sitting right next to the ocean. It is estimated that around 146 million people worldwide (about 7 times the population of Australia) now live within just 1 metre of current sea level. Even small rise in sea level will have significant effects on very many people, including many Australians.

One of the main consequences of rising sea level is change in the effects of normal fluctuations in the sea level we experience from day to day, because of tidal cycles, weather events, waves, storms and storm surges, and so on. The high points in these variations are collectively referred to as extreme sea levels and are the events that occasionally cause beach erosion, inundation of coastal land and, sometimes, damage to infrastructure around our coasts. Even if the relative intensity or frequency of events such as storms don't change, the fact that they will occur on top of an increasing average sea level means that their effects will be felt more often at

any given point along the coast.

The historical frequency of such extremes has been used to set guidelines for coastal development, such as rules for set-back from coasts or the minimum heights above sea level at which buildings will be approved. All these 'standards' are based on the assumption that average sea level remains fairly constant and that future extremes of sea level also will be roughly similar in absolute height and frequency to past experience. Unfortunately, as sea level rises these assumptions fail and we will see increasing frequency of events like inundation of low-lying land and coastal infrastructure.

Some work done recently at the ACE CRC indicates that such events that we now expect to recur approximately once in 100 years will recur about every 20 years by 2050 under moderate amounts of sea level rise and might be expected annually under the more severe projected rises in sea level. Either way, the social, environmental and economic costs will be dramatic.

The ACE CRC has a whole research program focussed on understanding sea level rise. Some of the major findings about the rate and magnitude of sea level rise over the last 150 years and the factors that influence sea level have come from researchers at the ACE CRC and our partners, researchers such as John Church, John Hunter and Neil White. Despite a lot of progress in unravelling the mysteries of changing sea level over recent years, however, there remain some major unknowns that make projections of future sea level difficult.

One of those unknowns, and perhaps the biggest sleeping giant in the sea level rise prognosis, is what will happen to the

Antarctic and Greenland ice sheets as our climate continues to warm. Some researchers have suggested recently that parts of these ice sheets may be far less stable than previously thought. They suggest that just slight increases in temperature of the atmosphere and oceans might trigger dynamic processes in the ice sheets that will result in accelerated loss of ice to the oceans and more rapid sea level rise than so far projected.

The recent reports from the Intergovernmental Panel on Climate Change highlighted the lack of understanding about such effects as one of the key uncertainties getting in the way of improving projections of sea levels that we will face over coming decades. Tackling this big question will be a major challenge for Antarctic (and Arctic) researchers in coming years and will be a key part of our proposal for a successor to the ACE CRC.

We need to get robust estimates of just how much rise in sea level we can expect as a matter of urgency to enable appropriate adaptation planning for our coastal communities in the near as well as the far future.

Bruce Mapstone
CEO ACE CRC

GLOBAL CLASSROOM

The world's first online Climate Change course, Studywizz, has been created by Melbourne's environmental education organisation Gould Group and Tasmania's Etech Group. For further details see www.studywizz.com/showcase.

Polar Publications

BOOKS

Arctic Diary: Surviving on Thin Ice by Sam and Richard Branson. Published by ?Virgin Books. Price: \$16.95.

- An account of Sir Richard and his son Sam's Arctic adventures.

Island of the Lost: A Harrowing True Story of Shipwreck, Death and Survival on a God-forsaken Island at the Edge of the World by Joan Druett. Published by Allen & Unwin. Price: \$26.95.

- A novel about the survivors of the schooners 'Grafton' and 'Invercauld' wrecked on Auckland Island south of NZ in 1864.

Antarctic Eye: A Visual Journey by Lyn Andrews. Published by: Studio One Price: \$200.00.

- Includes 159 images covering over 200 years of Antarctic art, from a world map drawn circa 150AD, to Sydney Nolan's 'Explorer' of 1964 and contemporary artists such as Jorg Schmeisser in 2000.

Alberta by Tania Cox and Janine Dawson. Published by Working Title Press. Price: \$24.95.

- A children's book about an alpha gentoo penguin's reaction to having a new sister.

Polar Crusader: A Life of Sir James Wordie by Michael Smith. Published by Berliin Limited Edinburgh. Price: \$25.00.

- Describes Wordie's strategic plans and experience, which were a great influence on British polar exploration during the twentieth century, including Shackleton's and Fuch's Trans-Antarctic Expeditions.

The Frozen World: A Panoramic Vision by Patrick Hook. Published by Chartwell Books Inc. Price: \$34.95.

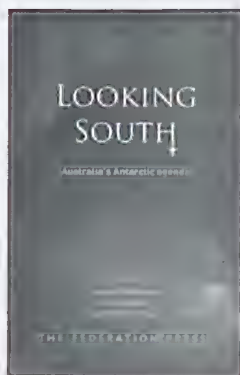
- A very large coffee table book containing superb photos of Arctic, Antarctic and Alpine landscapes and animals.

Heard Island: Southern Ocean Sentinel edited by Ken Green and Eric Woehler. Published by Surrey Beatty and Sons Pty Ltd. Price: \$77.00.

- A very comprehensive book describing many aspects of Heard Island, from

geology and glaciers, to vegetation and seabirds. Chapters by 22 experts in their field provide readers with a thorough understanding of this Sub-Antarctic Island.

BOOK REVIEW



Looking South: Australia's Antarctic Agenda edited by Lorne K. Kriwoken, Julia Jabour, Alan D Hemmings. Published by The Federation Press. Price: \$49.95.

Looking South explores the issues identified in 1984 by Professor Stuart Harris in his book 'Australia's Antarctic Policy Options'. While the latter was the first to analyse Australia's involvement in Antarctic matters, the former provides an update on these issues over twenty years of development, as well as describing new issues that have emerged. Although readers are sometimes overwhelmed by a sea of acronyms, all of these are explained, and there are over 18 pages of book references used by the authors, whose qualifications are also described.

The fourteen chapters of Looking South provide a comprehensive overview of Antarctic issues such as Australian influence in the Antarctic Treaty System; sovereignty; climate change; tourism and whaling. Each topic has been thoroughly researched from various points of view, giving the reader a much broader perspective than one based on media reports.

For instance, did you know that there are two major factors threatening whale populations more than all whaling operations combined, legal or illegal? These are

the effects of global warming destroying feeding habitats and ocean pollution from organochlorides and heavy metals. [Chapter 10]. Another interesting section, in Chapter 12, points out that as carbon dioxide is thought to reside in the atmosphere for 100 years, current elevated levels in Antarctica are more likely to be result of accumulations based on UK and Germany's contributions. USA is the highest current emitter and Australia's annual emissions barely rate at all.

Understanding how Australian policy-makers are often placed in a very delicate position when attempting to adhere to national policies as well as international laws is well described in each issue covered, and there are many insights into the difficulties faced when trying to satisfy a diverse group of parties involved in Antarctic operations. 'Australia's Antarctic Policy Community' itemises 19 groups, from the inner 'Executive Core' to the outer 'International Attentive Public', all of whom affect decision-making. Australia's presence in every ATS forum indicates the priority given to maintaining the Treaty System, now consisting of 46 members, and enhancing Australia's influence.

Alan Hemmings' chapter on Globalisation includes references to Commercial Interests, with a mention of Antarctic Tasmania's role. "One cannot be in any doubt when in Hobart that there is a live local political and commercial interest in Antarctica". [However, it was disappointing that the role of the unique Tasmanian Polar Network, established 15 years ago as a co-operative group including researchers, academics and private business members, was not considered significant enough to mention.]

I recommend Looking South to anyone interested in acquiring a better understanding of Australia's key role in Antarctica's future.

Polar Calendar

7	March	2008	TPN meeting. 11.00am-1.00pm. IASOS building, University of Tasmania. Hobart, Tasmania.
10-20	March	2008	Cambridge Science Festival. British Antarctic Survey, Cambridge, UK.
15	March	2008	End of Ships, Shoes and Snow Goggles, exhibition of paintings and sketches by Vincent Alexander Booth. Scott Polar Research Institute, Cambridge, UK.
29	March	2008	End of First Across:1955-58 Commonwealth Trans-Antarctic Expedition display. SPRI, Cambridge, UK.
16-18	April	2008	Dynamics in the Southern Ocean (ICED) program-first model development workshop. Old Dominion University, Virginia, USA. Contact RCAV@bas.ac.uk.
28	April	2008-	19th IAATO General Meeting. Punta Del Este, Uruguay.
1	May	2008	
4-11	May	2008	IPY New Generation Polar Research Symposium. La Foret Conference Center, Colorado Springs, Colorado, USA.
11-15	May	2008	Polar and Alpine Microbiology. Banff, Alberta, Canada.
5	June	2008	World Environment Day.
6	June	2008	TPN meeting (to be confirmed).
9-12	June	2008	3rd Antarctic Meteorological Observation, Modelling and Forecasting Workshop. Madison, Wisconsin, USA.
	June	2008	Antarctic Midwinter Festival. Hobart, Tasmania. Details to be confirmed.
28	June	2008	Sydney Midwinter Dinner. For other Midwinter Dinner details, see www.anareclub.org.au
29	June	2008-	9th International Conference on
3	July	2008	Permafrost. Fairbanks, Alaska, USA.
30	June	2008-	Antarctic NZ Annual Conference.
2	July	2008	University of Otago, Dunedin, NZ.
5-16	July	2008	XXX SCAR Meetings. St Petersburg, Russia.
8-15	August	2008	33rd International Geological Congress. Oslo, Norway.
11-15	August	2008	Fourth International Conference on Biology and Conservation of Albatrosses and Petrels. Cape Town, South Africa.
11-15	August	2008	Joint CCAMLR-IWC Workshop. Hobart, Tasmania.
16-24	August	2008	National Science Week.
5	Sept.	2008	TPN meeting (to be confirmed).
12-18	October	2008	Earth Science Week.
27	October	2008-	CCAMLR meetings. Hobart,
7	Nov.	2008	Tasmania.

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Shipping & Air Calendar

Shipping

5	March	2008	L'Astrolabe		Arrives Hobart.
6	March	2008	Aurora Australis	V4	Departs Mawson.
15	March	2008	L'Astrolabe	V5	Departs Hobart.
19-28	March	2008	L'Astrolabe	V5	Macquarie Island
20	March	2008	Aurora Australis	V4	Arrives Hobart
22	March	2008	Aurora Australis	V6	Departs Hobart.
28	March	2008-			
18	April	2008	Aurora Australis	V6	Marine Science.
1	April	2008	L'Astrolabe	V5	Arrives Hobart. Off-hire.
21	April	2008	Aurora Australis	V6	Arrives Hobart. Off-hire.

Antarctic Runways - a selection from www.comnap.aq

Name	Operator	Runway Length	Landing Gear	Altitude above Sea
Amundsen-Scott	USA	3660m	Ski	2830m
Arturo Parodi	Chile	2500m	Wheel & Ski	880m
Browning Pass	Italy	915m	Ski	170m
Casey	Australia	Variable	Ski	30m
Casey/Wilkins	Australia	4000m	Wheel & ski	737m
Concordia	France & Italy	1500m	Ski	3220m
D10 skiway	France	Variable	Ski	~100m
D85 skiway	France	Variable	Ski	2850m
Davis	Australia	Variable	Ski	15m
Enigma Lake	Italy	730m	Ski	170m
Fossil Bluff	United Kingdom	1200m	Ski	92m
Frei	Chile	1300m	Wheel	10m
Halley	UK	1200m	Ski	37m
Kohnen	Germany	900m	Ski	2900m
Marambio	Argentina	1200m	Wheel	200m
Mario Zucchelli	Italy	3000m	Wheel & ski	15m
Mawson	Australia	Variable	Ski	5m
McMurdo	USA	3000m	Wheel & ski	~10m
Mid Point	Italy	1200m	Ski	2520m
Moledetzhnaya	Russia	2560m	Wheel & ski	225m
Neumayer	Germany	1000m	Ski	40m
Novolazarevskaya	Russia	3000m	Wheel & ski	102m
O'Higgins	Chile	800m	Ski	12m
Odell Glacier	USA	1800m	Wheel	1600m
Rothera	UK	2500m	Wheel & ski	16m
SANAE IV	South Africa	1000m	Ski	850m
Sitry	Italy	1000m	Ski	1600m
Sky Blue	UK	Variable	Wheel	1370m
Syowa	Japan	100m	Ski	29m
Troll	Norway	3000m	Wheel	1300m
Vostok	Russia	3000m	Ski	3500m

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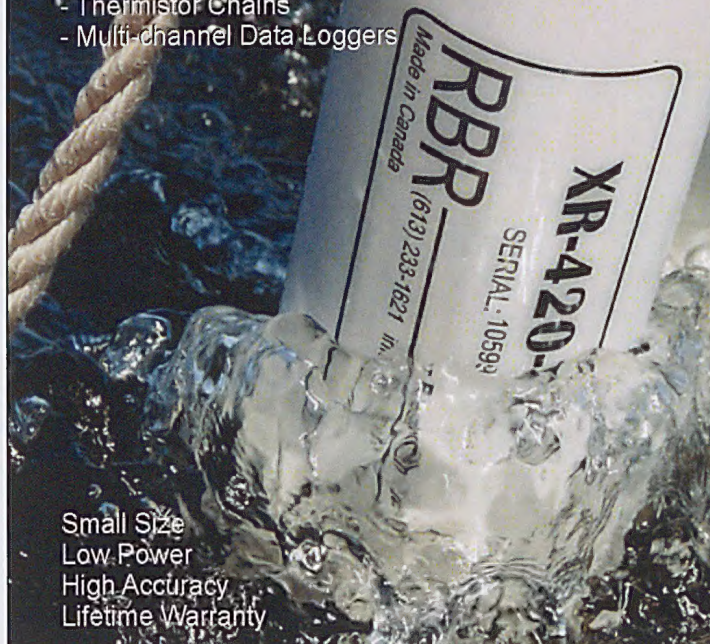
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